

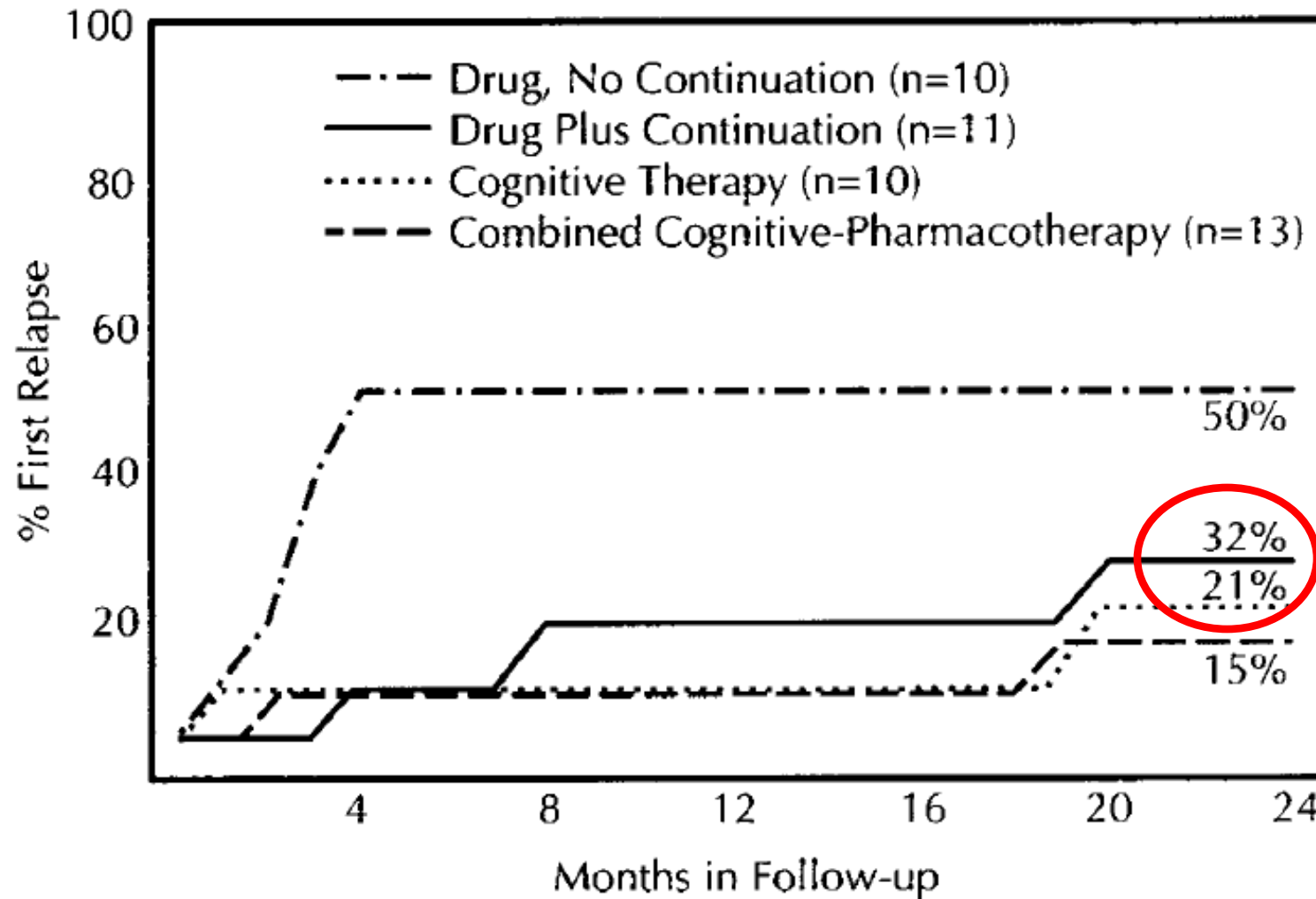
Mindfulness Meditation and Relapse Prophylaxis in Mood Disorders

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University of Toronto Scarborough

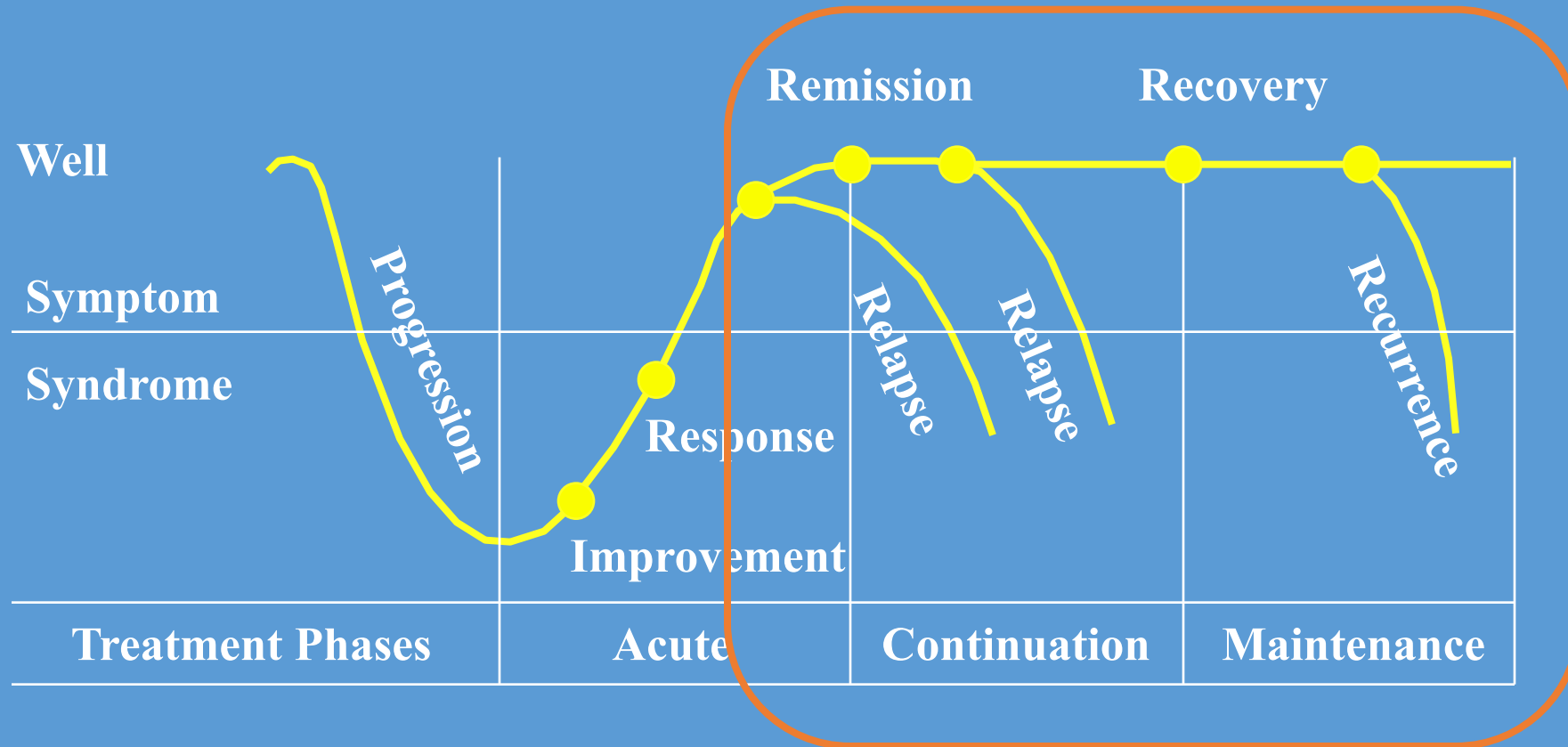
Financial Disclosures for Dr. Zindel Segal

- Co-developer of Mindfulness Based Cognitive Therapy and receives royalties from Guilford Press for the MBCT treatment manual and patient books.
- Has presented keynote addresses at conferences and MBCT clinical training workshops where he has received a fee.
- Co-founder of MindfulNoggin Inc., an online digital platform for MBCT dissemination.

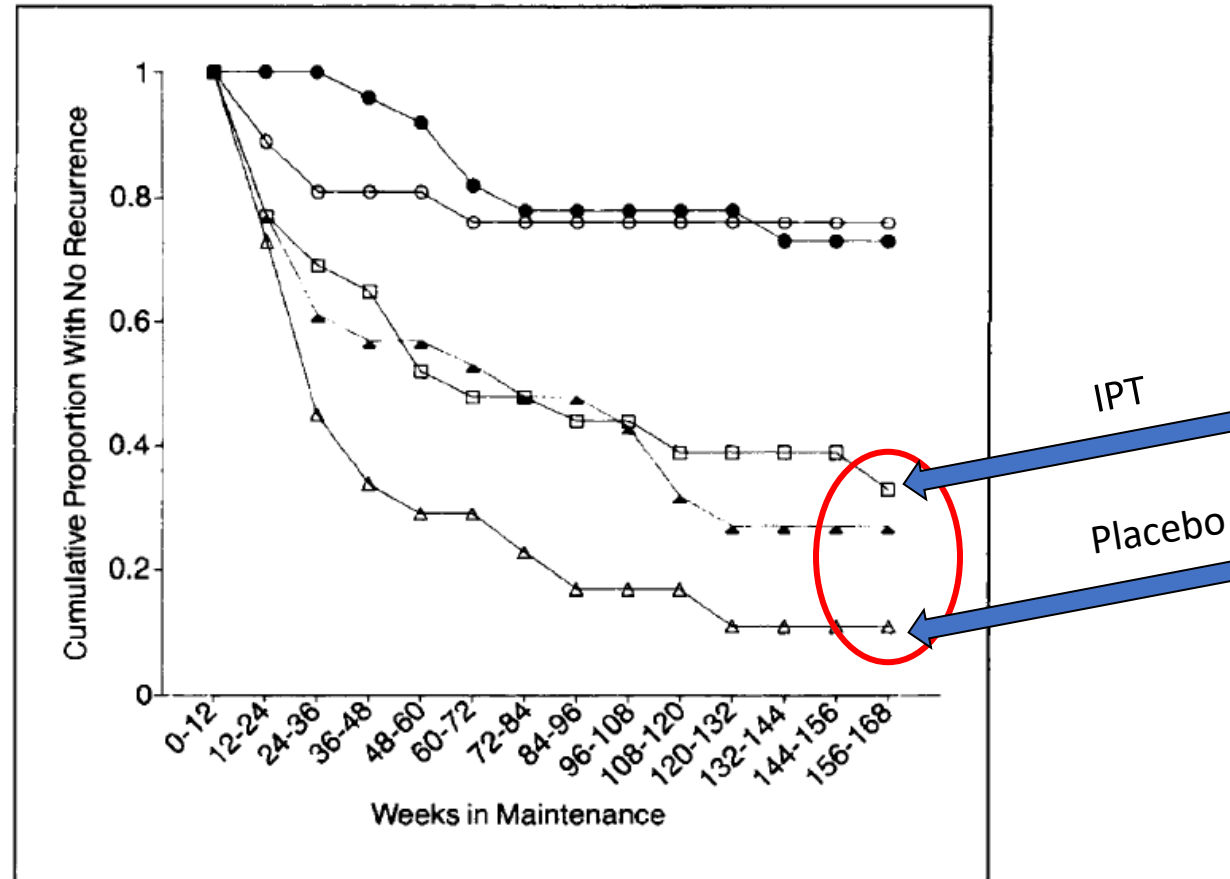
Early Evidence of Prophylaxis via Acute Phase Cognitive Therapy (Evans et al, 1992)



Depression: Course and Outcome



Early Evidence of Psychological Prophylaxis Against Depressive Relapse (Frank et al., 1990)



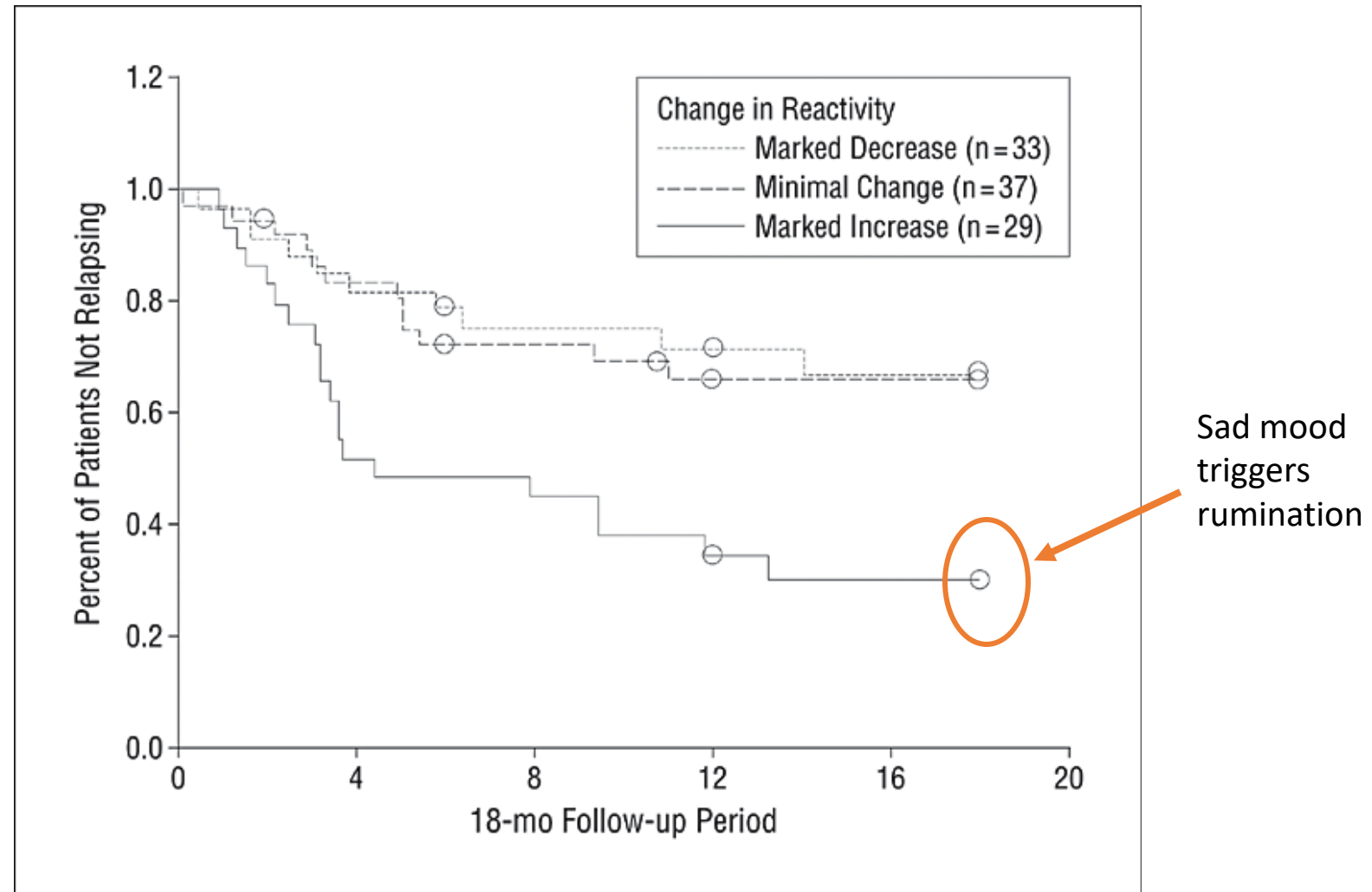
Outcome of the maintenance therapies in recurrent depression protocol. Open circles represent group that underwent medication clinic and active imipramine; solid circles, interpersonal psychotherapy and active imipramine; squares, interpersonal psychotherapy alone; solid triangles, interpersonal psychotherapy and placebo; and open triangles, medication clinic and placebo.

Funded to develop maintenance CBT



Best evidence for a treatment target pointed to
dysphoria-linked cognitive elaboration

Cognitive Reactivity Shortens Time to Depressive Relapse



How Does Cognitive Therapy Reduce Relapse?

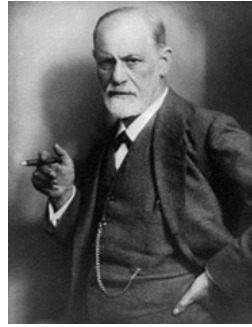
| Situation | Emotion 0 - 100% | Automatic Thought (AT) | Evidence to support your AT | Evidence Against your AT | Balanced/ Alternative Viewpoint | Re-rate Mood 0 –100% |
|--|---|---|--|--|--|---|
| <p>I asked my sister to look after my son so that my husband and I could go out for dinner.</p> <p>She said no. She said I should spend more time with him now that I am back from the hospital.</p> | <p>Guilty 70%</p> <p>Rejected 80%</p> | <p>She is telling me how to raise my son.</p> <p>I am a bad mother.</p> | <p>My son said he is worried about me.</p> <p>My husband is doing most of my chores.</p> | <p>My son has made 2 new friends at school.</p> <p>I make sure to read to my son every night before bed.</p> | <p>Having depression doesn't automatically make me a bad mother.</p> <p>When I condemn myself it is often the depression speaking.</p> | <p>Guilty 40%</p> <p>Rejected 40%</p> |

Distress Tolerance

Recognize Automaticity

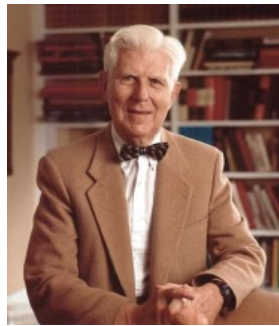
View Thoughts as Mental Events

Curiosity Replaces Judgment



Self-Distancing

Decentering



Meta-Cognitive Awareness

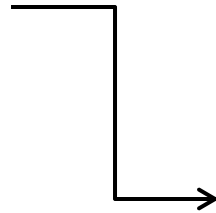
Defusion



Observing Ego



1991-93



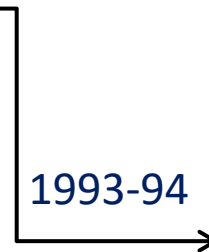
1992



On Sabbatical



1993-94



Center for Mindfulness
in Medicine, Health Care, and Society

1995



NIMH R21: Attentional Control Training

MBCT – Three Main Hypotheses:

1. Mindfulness Meditation Offers Direct Training in Decentering
2. Decentering is anti-ruminative
3. Lower levels of rumination are associated with greater depression prophylaxis.

Gradient of Attentional Focus in Mindfulness Training

Tangible



Intangible

- Mindful Eating
- Body Scan
- Mindful Walking or Stretching
- Sitting with the Breath
- Sitting with Sounds
- Sitting with Thoughts
- Sitting with a Difficulty

MBCT Session Content

S1: Awareness and Automatic Pilot

S2: Living in our Heads

S3: Gathering the Scattered Mind

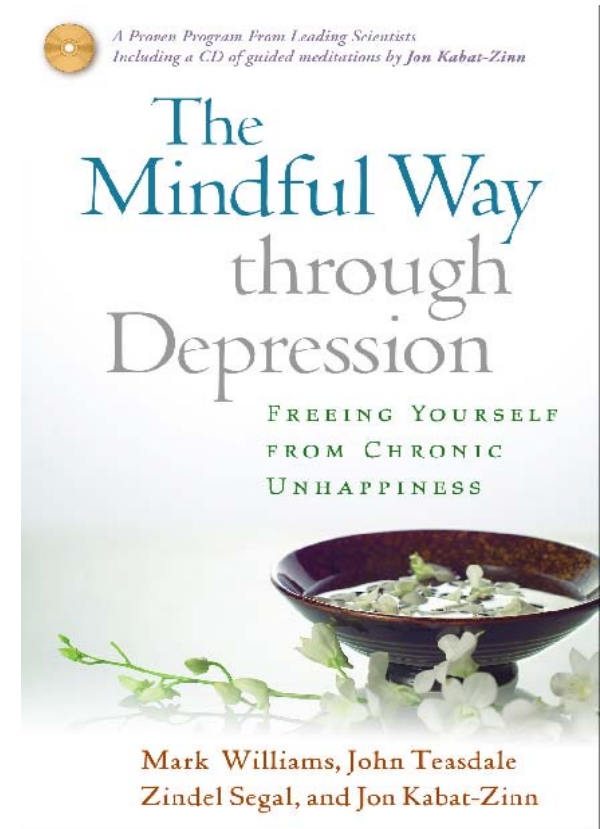
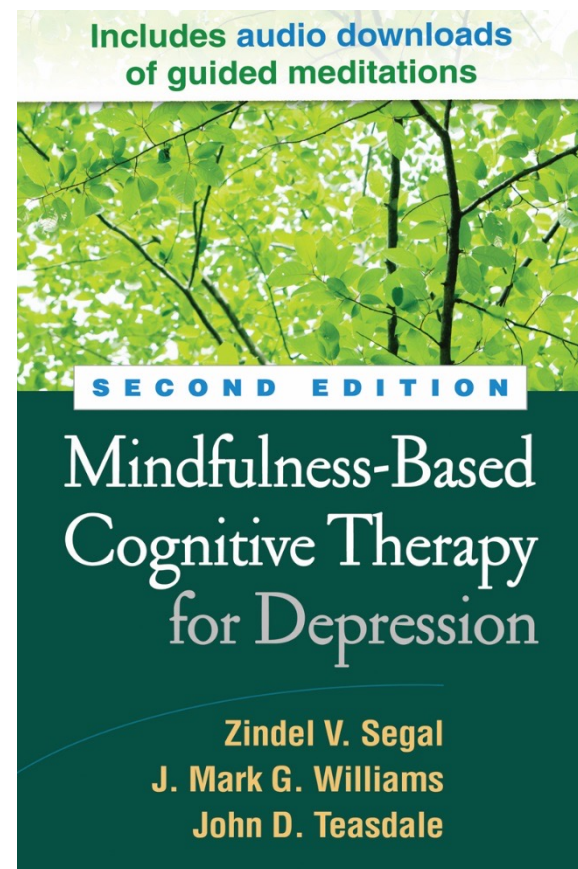
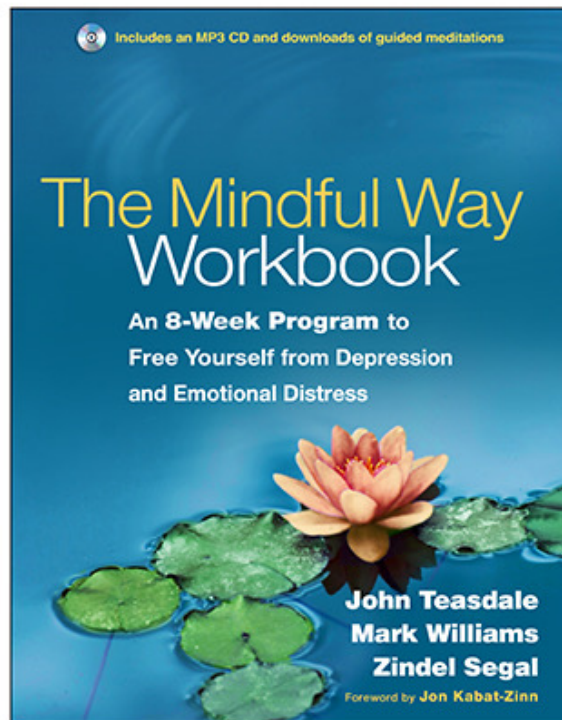
S4: Recognizing Territory of Aversion

S5: Allowing / Letting Be

S6: Thoughts Are Not Facts

S7: Taking Best Take Care of Myself

S8: Maintaining and Extending New
Learning



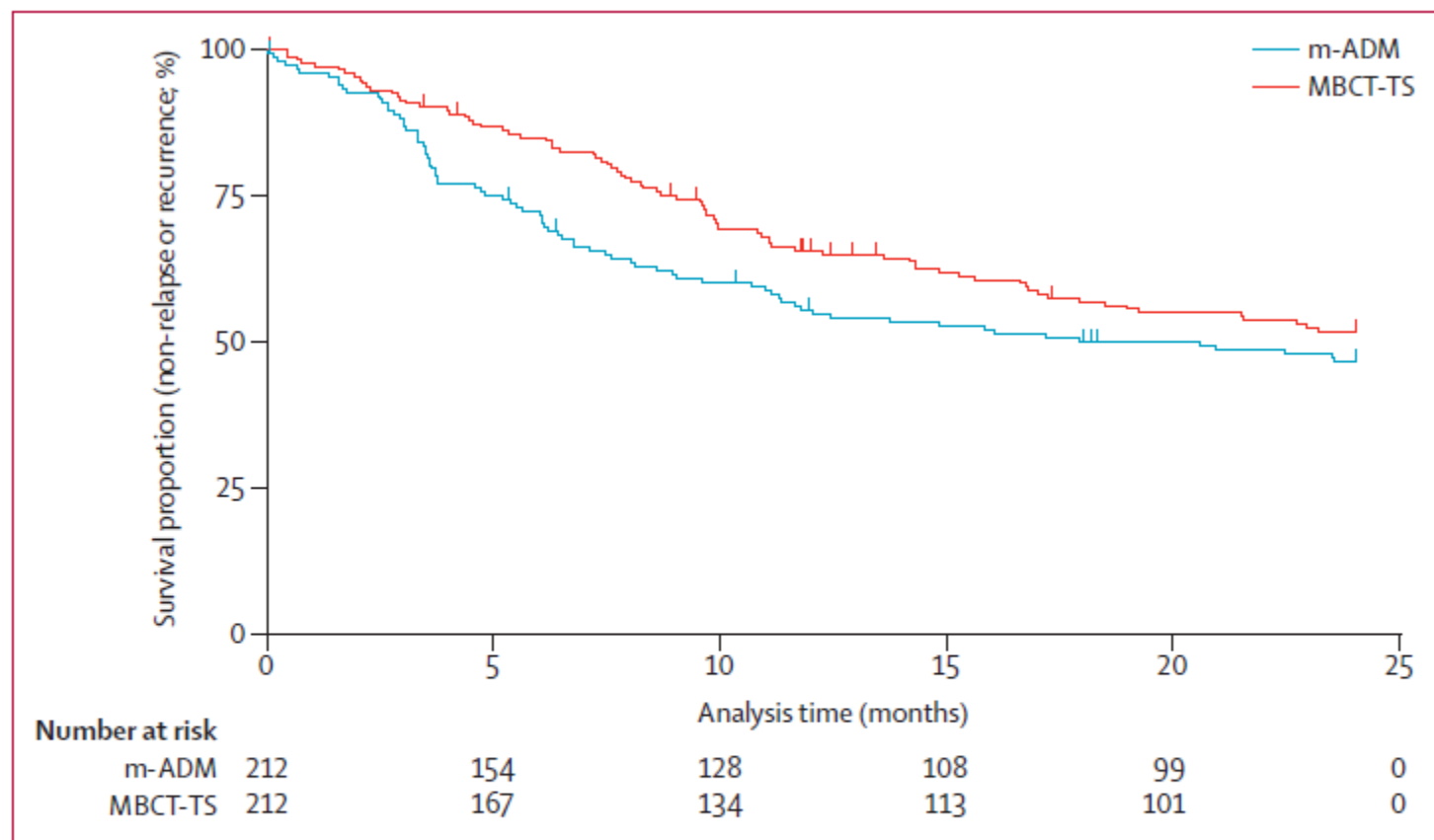
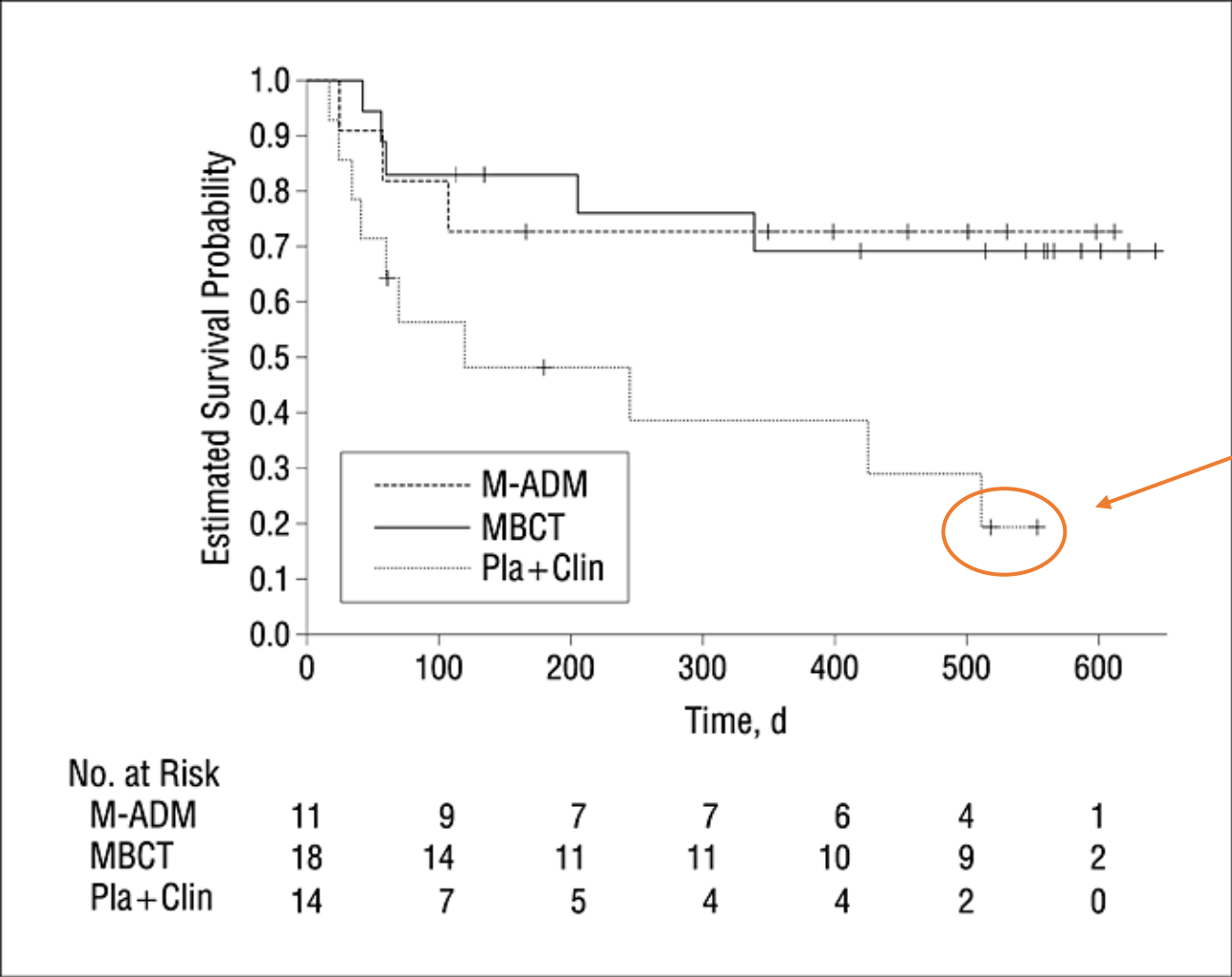


Figure 2: Survival curves (of not relapse or recurrence) over a 24-month follow-up period for the intention-to-treat population
 m-ADM=maintenance antidepressant medication. MBCT-TS=mindfulness-based cognitive therapy with support to taper or discontinue antidepressant medication.

Cumulative proportion of patients who survived without relapse during 18 month follow-up

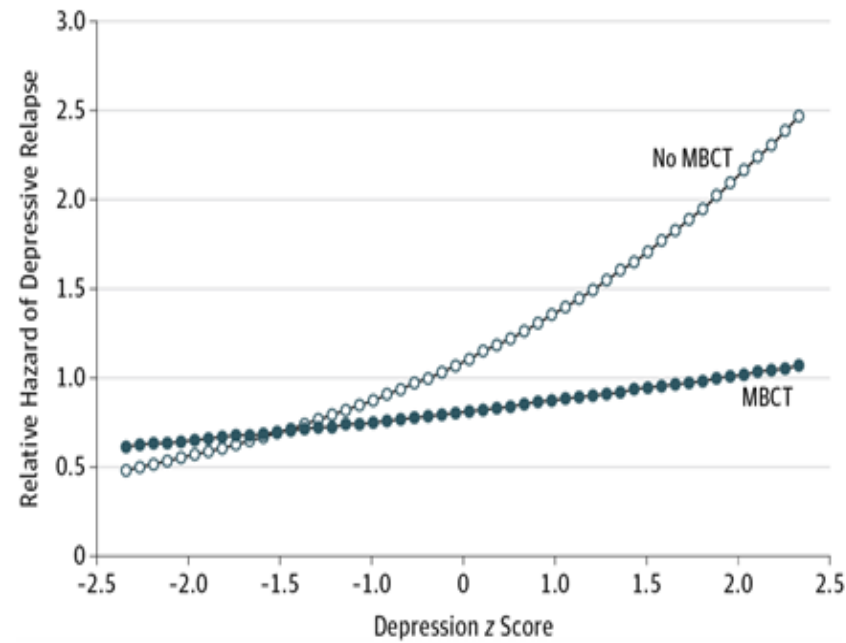


Placebo group has lowest overall survival

Segal et al., 2010.

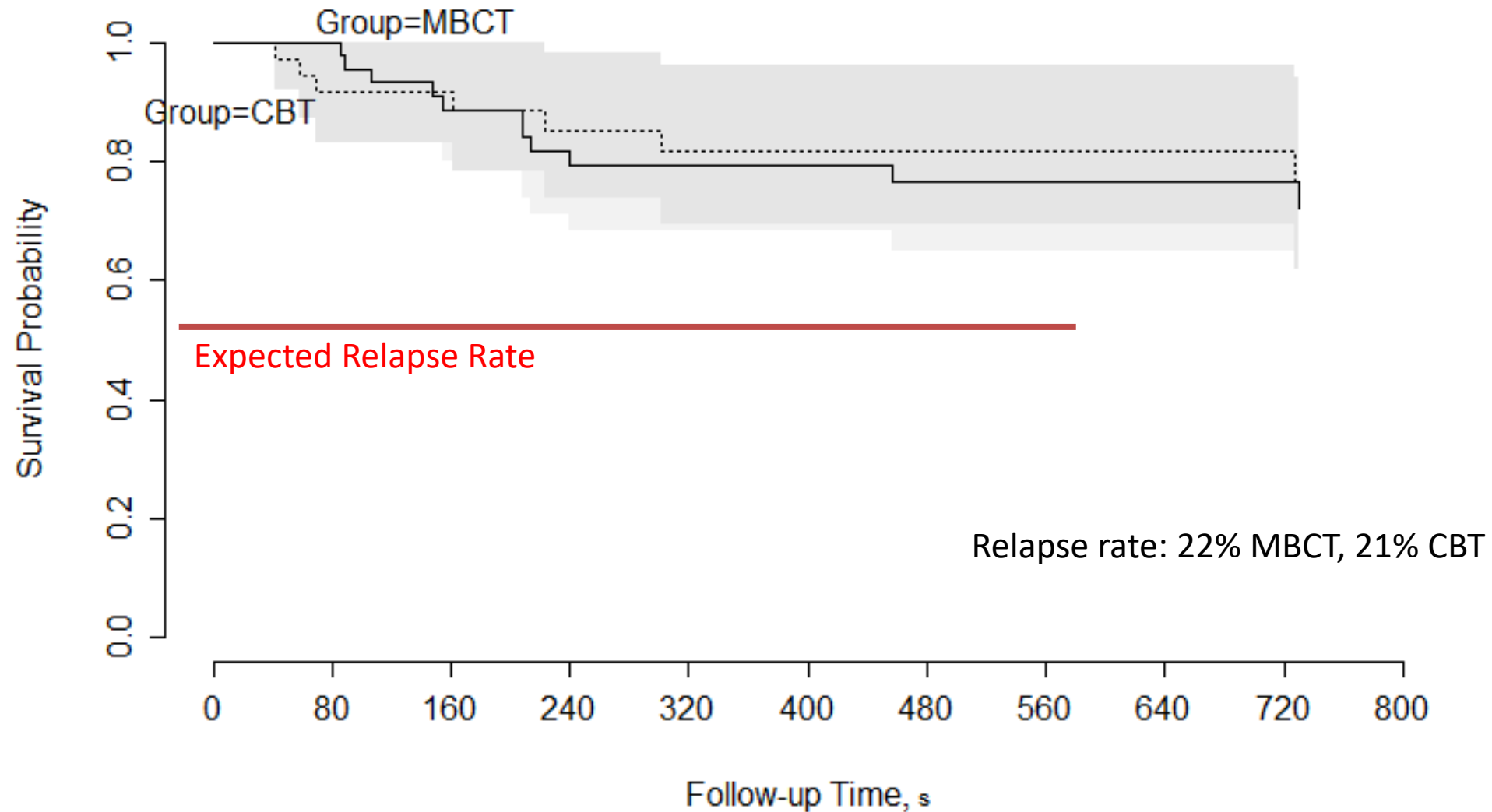
From: **Efficacy of Mindfulness-Based Cognitive Therapy in Prevention of Depressive Relapse: An Individual Patient Data Meta-analysis From Randomized Trials**

JAMA Psychiatry. 2016;73(6):565-574. doi:10.1001/jamapsychiatry.2016.0076



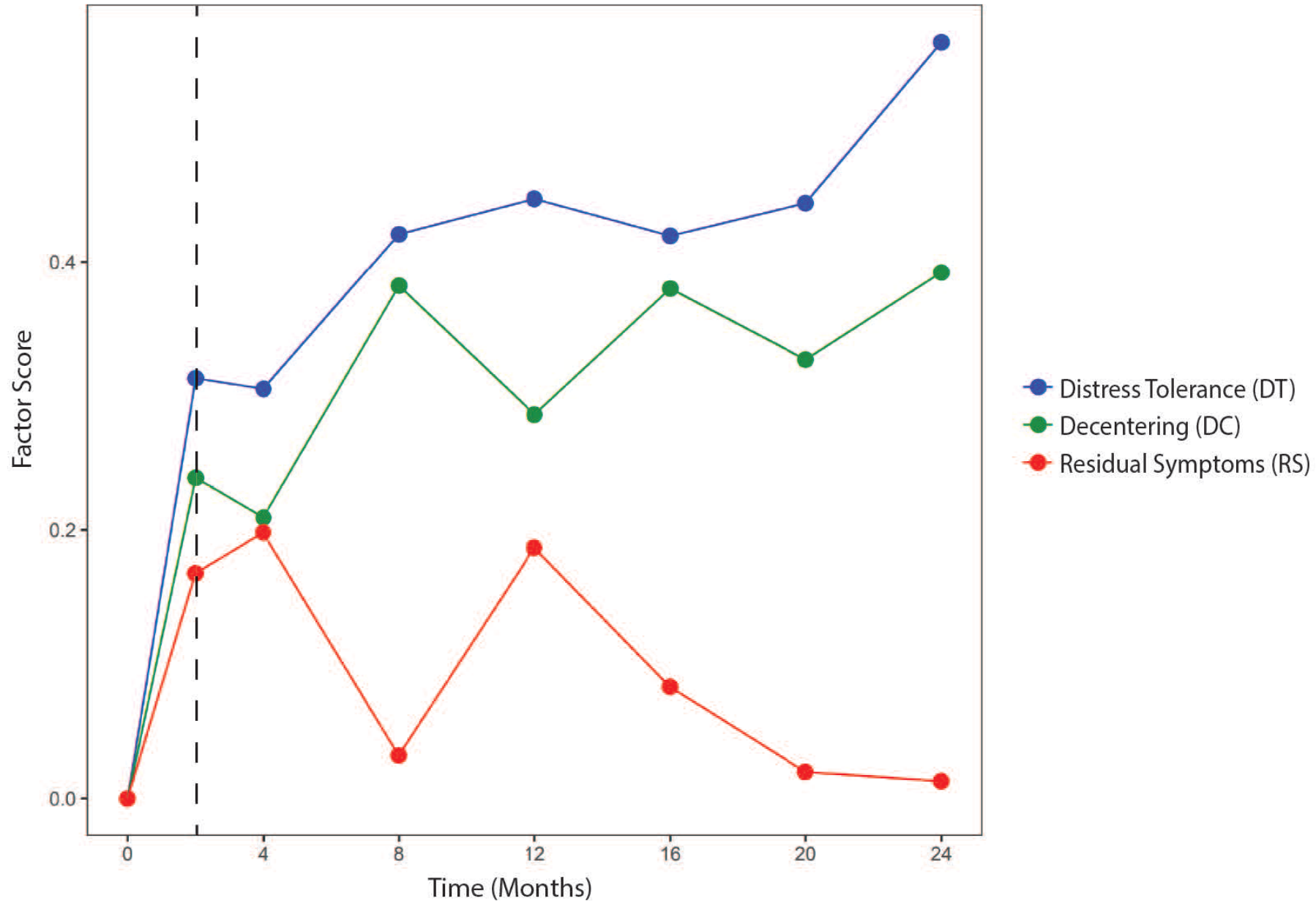
Prevention Treatments Permit Studying Mechanisms of Change

(N=166)



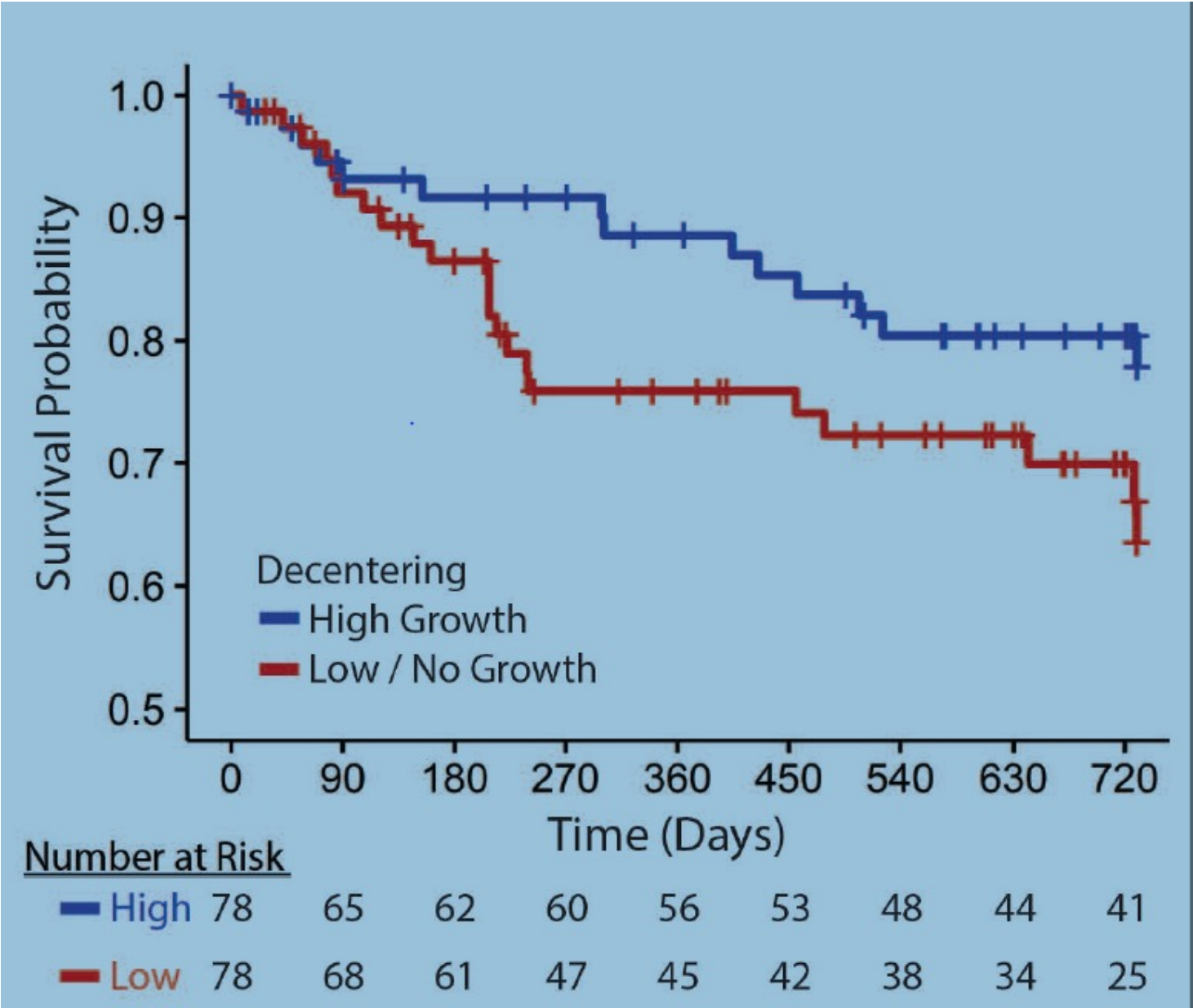
Change in 3 Latent Factors Post CBT/MBCT Over 2 Years

A

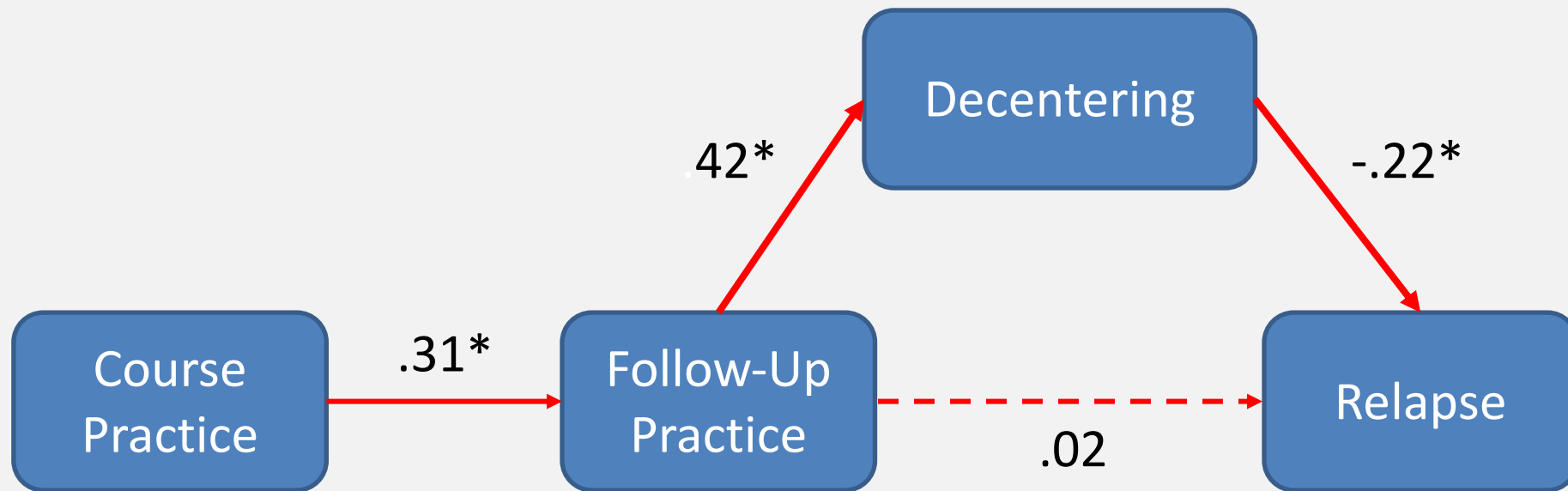


Segal et al., 2019

High and Low Decentering Growth Predicts Relapse/Recurrence Over 2 Years (HR=.232)



(When) Does Practice Matter?



Reconsidering Our Hypotheses I:

Mindfulness meditation offers direct training in decentering and so does CBT. If taught that way!

Growth in decentering, via CBT or Mindfulness provides greater depression prophylaxis.

How does this square with the neuroscience of depression risk following prevention treatment?

Neural Reactivity to Dysphoric Mood Induction

Neutral Clips



HGTV (Crafts & Gardening)

Vs.

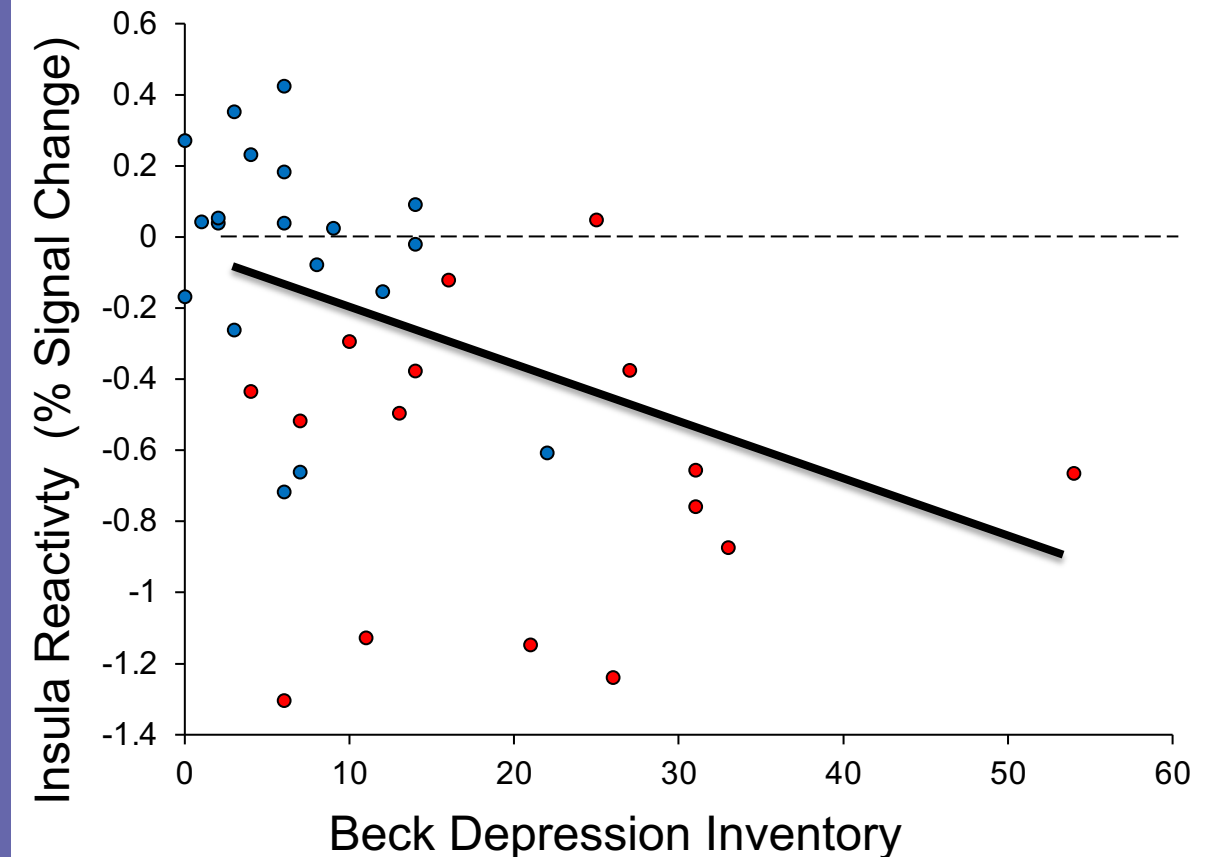
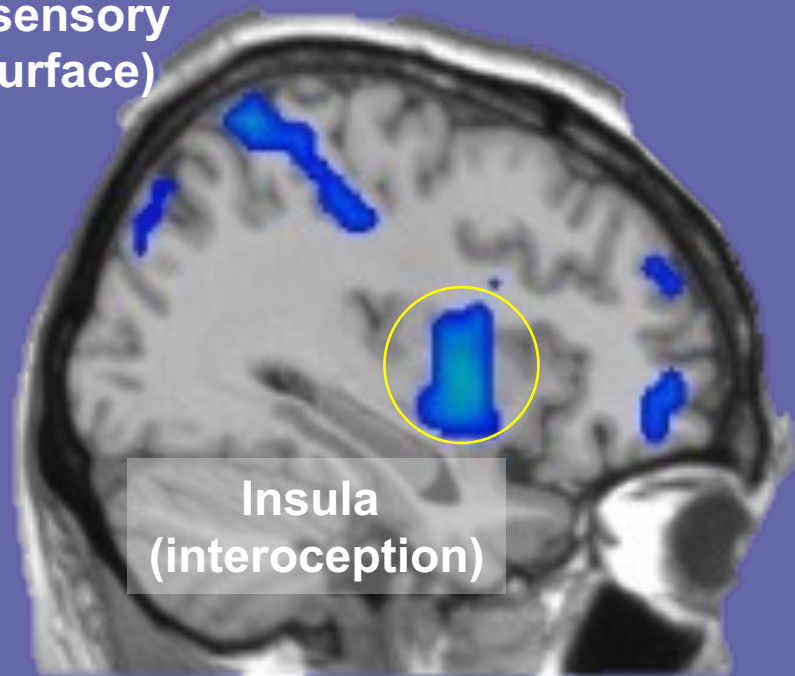
Sad Clips



The Champ

Terms of Endearment

Somatosensory
(body surface)



Neural Reactivity to Dysphoric Mood Induction

Neutral Clips



HGTV (Crafts & Gardening)

Vs.

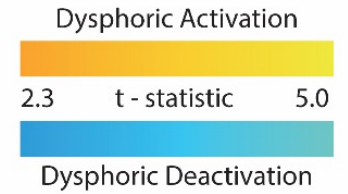
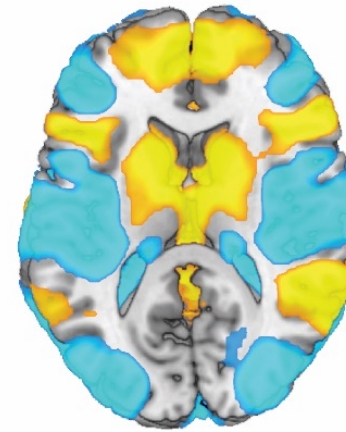
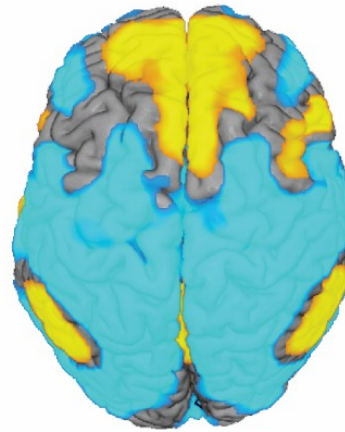
Sad Clips



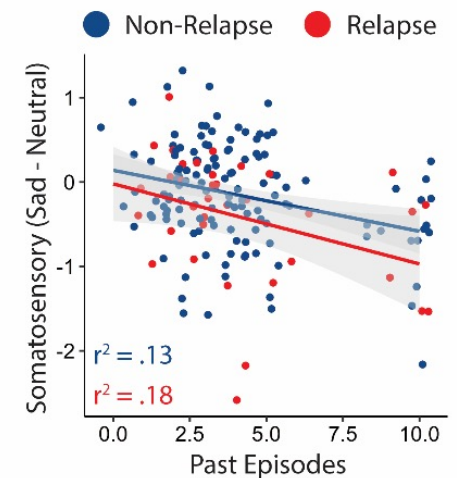
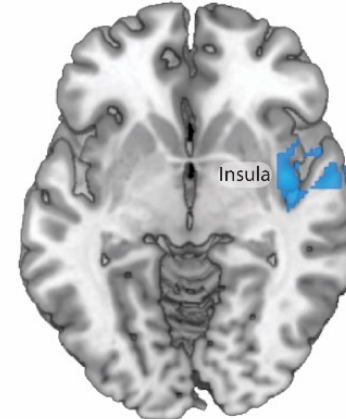
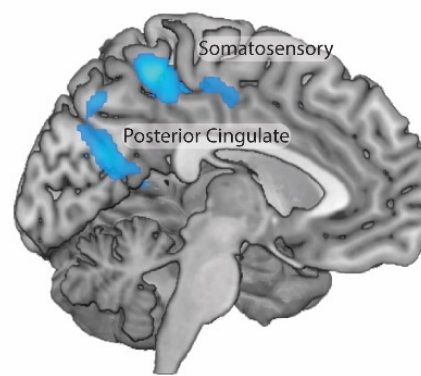
The Champ

Terms of Endearment

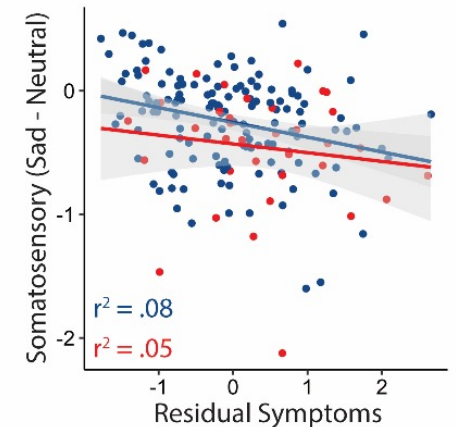
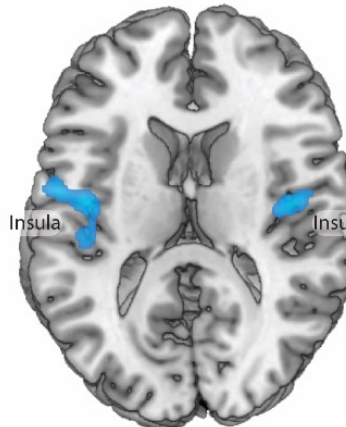
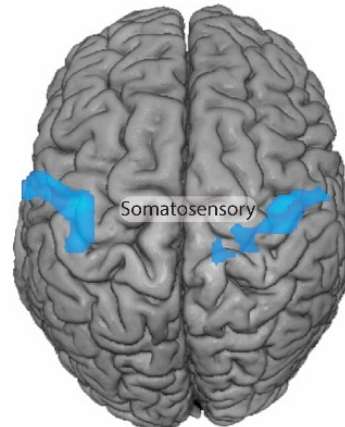
A



B

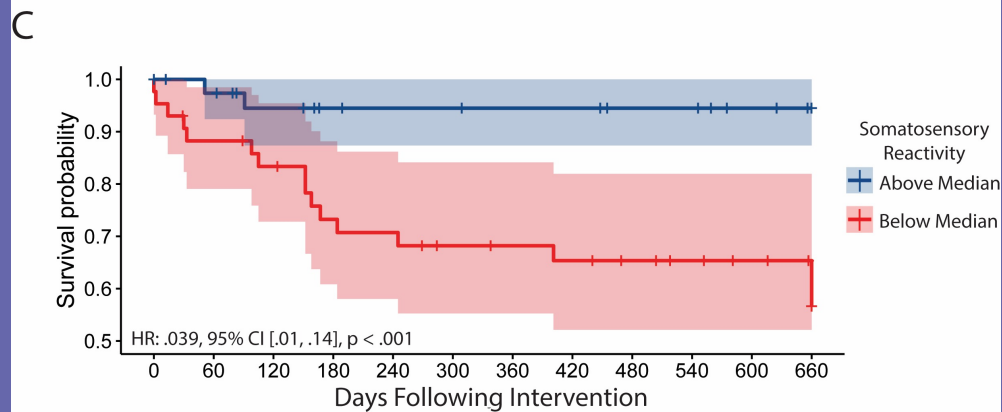
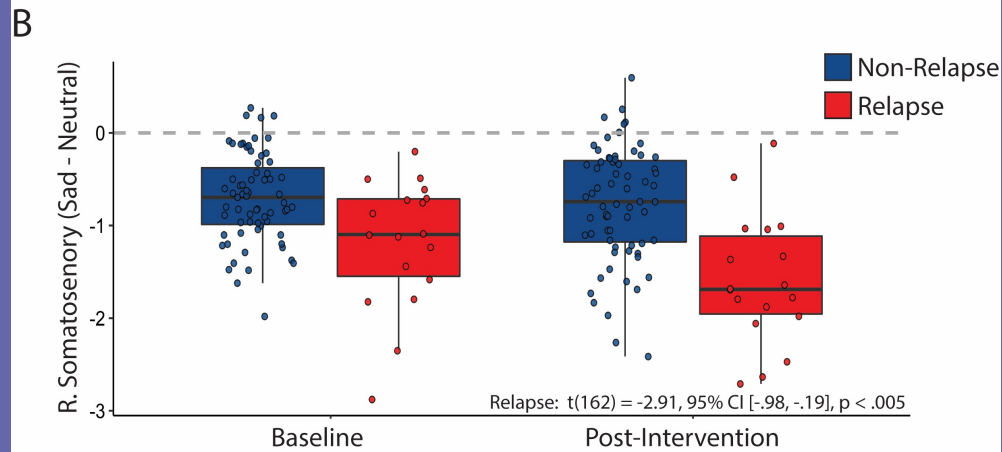
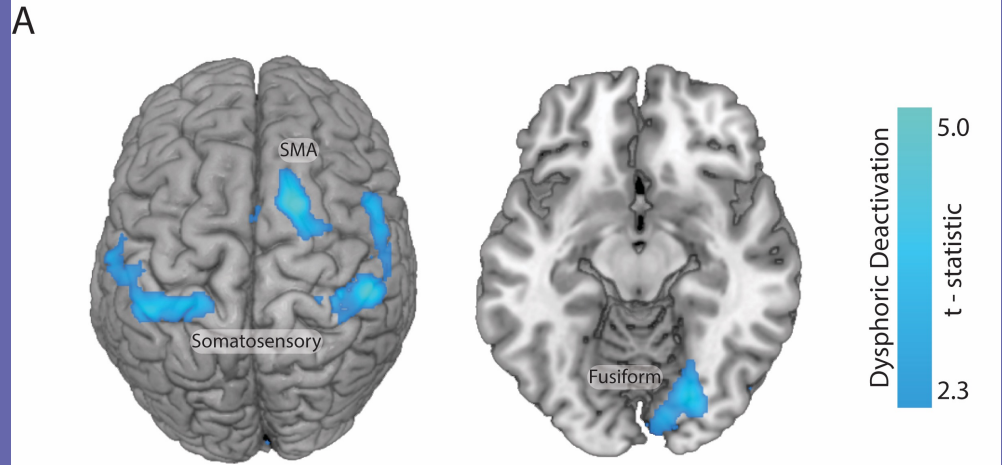


C



Main Effects of Relapse Status on Neural Reactivity to Dysphoric Mood Induction

- A) Regions sensitive to future relapse status.
- B) Boxplot of pre/post right somatosensory reactivity.
- C) Survival curves as a function of average right somatosensory reactivity.

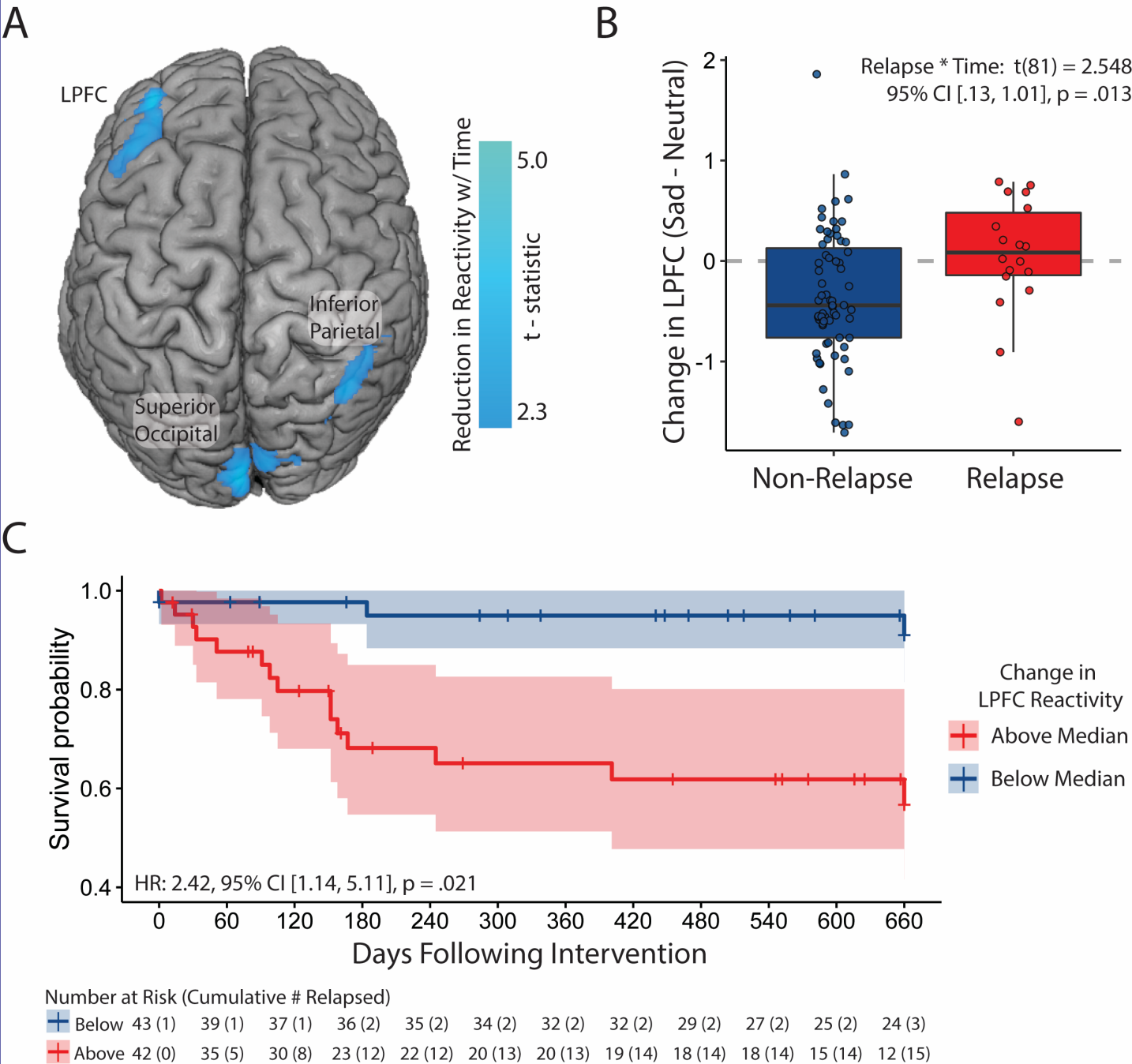


Number at Risk (Cumulative # Relapsed)

| | | | | | | | | | | | | |
|-------|--------|--------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| | 0 | 60 | 120 | 180 | 240 | 300 | 360 | 420 | 480 | 540 | 600 | 660 |
| Above | 42 (0) | 37 (1) | 33 (2) | 30 (2) | 29 (2) | 28 (2) | 28 (2) | 26 (2) | 26 (2) | 23 (2) | 21 (2) | |
| Below | 43 (1) | 37 (5) | 34 (7) | 29 (11) | 28 (12) | 25 (13) | 24 (13) | 23 (14) | 21 (14) | 19 (14) | 17 (14) | 15 (16) |

Effects of Time (Pre/Post Intervention) on Neural Reactivity to Dysphoric Mood Induction within the Non-Relapser Group

- A. Regions demonstrating reduced reactivity over time.
- B. Boxplot of left lateral prefrontal cortex (LPFC) change scores over time.
- C. Survival curves as a function of change in left LPFC change scores.



Sense Foraging Promotes Sensory Processing



TASTE



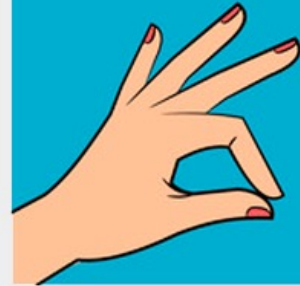
HEARING



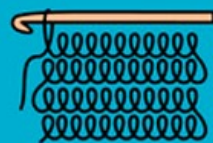
SIGHT



SMELL



TOUCH



Sense Foraging Requires Access Points

| | Autonomous | | Supported | |
|--------------|--|---|---|---|
| | High Access | Low Access | High Access | Low Access |
| Nature | Savoring walk in the park | Mountain Climbing | Touring a botanical garden | Guided mushroom foraging |
| Exercise | Brisk walk in the park | Surfing | Neighborhood running group | Circuit training with a coach |
| Art | Adult colouring books | Visit the Louvre | Pottery or winetasting class | In-person masterclass |
| Travel | Visit a tourist destination in your own town | Visit a tourist destination in a foreign land | Take a historic tour of your local neighborhood | Go on a guided trek to a remote part of the world |
| Meditate | Personal practice | Silent retreat | Meditation app or recording | MBSR, MBCT |
| Psychedelics | Unguided trip at home | Unguided trip at a retreat or foreign clinic | Guided trip, off-label (e.g., ketamine clinic) | Guided trip, at a retreat or foreign clinic |

Reconsidering Our Hypotheses II:

- Dysphoria-evoked sensory deactivation contributes to episode return.
- Vulnerability may be mitigated by targeting prefrontal regions responsive to clinical intervention.
- Emotion regulation during recovery may be enhanced by reducing prefrontal cognitive processes in favour of sensory representation and integration.
- Hard to know if these strategies apply to less clinically indicated samples.